

WHAT IS CLAIMED IS:

1. A vehicle brake system for generating braking force in each vehicle wheel according to operation of a brake pedal, comprising:

a braking force regulating portion that is controlled by dither current and generates the braking force;

a brake noise detecting portion for detecting at least one of brake noise generation and a possibility thereof in each vehicle wheel; and

a control portion for controlling the dither current, wherein

when either the brake noise generation or the possibility thereof is detected by the brake noise detecting portion, the control portion changes at least one of an amplitude and a cycle of the dither current to suppress brake noise.

2. The vehicle brake system according to claim 1, further comprising;

a master cylinder for generating a master cylinder pressure;

a wheel cylinder provided for each vehicle wheel for receiving the master cylinder pressure that is introduced from the master cylinder through a brake conduit, thereby applying wheel cylinder pressure to each wheel cylinder to generate braking force in the vehicle wheel; and

a pump for sucking up brake fluid from the master cylinder and discharges the brake fluid between the linear valve and the wheel cylinder is further provided; wherein

the braking force regulating portion is a linear valve that is provided upstream of the wheel cylinder and generates differential pressure proportional to an amount of current supplied; and

the control portion changes at least one of the amplitude and the cycle of the dither current to be supplied to the linear valve, thereby generating hydraulic pulsation in accordance with a dither cycle of the dither current.

3. The vehicle brake system according to claim 2, further comprising:

a normally-open increase control valve provided between the linear valve and the each wheel cylinder, wherein

the control portion executes switching control of the each increase control valve and generates the hydraulic pulsation in only a vehicle wheel that has been determined to have brake noise generation.

4. The vehicle brake system according to claim 2, wherein the dither frequency is lower than a resonance frequency of a brake caliper or a rotor of each vehicle wheel.

5. The vehicle brake system according to claim 1, wherein the braking force regulating portion is a brake driving actuator provided for each vehicle wheel, and the control portion superimposes the dither current on a target current which is determined according to the amount of depression of the brake pedal, and supplies the brake driving actuators of each vehicle wheel with the target current, as output current, onto which the dither current is superimposed, so as to drive the brake driving actuator, thereby generating braking force in each wheel.

6. The vehicle brake system according to claim 5, wherein the cycle of the dither current for the brake driving actuator of the vehicle wheel is reduced when the brake noise generation or the possibility thereof exists.

7. The vehicle brake system according to claim 5, wherein the amplitude of the dither current for the brake driving actuator of the vehicle wheel is increased when the brake noise generation or the possibility thereof exists.

8. The vehicle brake system according to claim 5, wherein the cycle and the amplitude of the dither current for the brake driving actuator of the vehicle wheel are

both reduced when the brake noise generation or the possibility thereof exists.

9. The vehicle brake system according to claim 5, wherein the cycle and the amplitude of the dither current for the brake driving actuator of the vehicle wheel are both increased when the brake noise generation or the possibility thereof exists.